DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-016845
Date Inspected: 26-Aug-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
Location: Shanghai, China

CWI Name:	See Below			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG

Summary of Items Observed:
CWI Inspectors: Mr. An Qing Ziang, Mr. Sha Zhi, Mr. Huang Wen Guang (ABF)

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

OBG Segment Trial Assembly

This QA Inspector observed ZPMC welder Mr. Chang Chuan Gang, stencil 053870 used flux cored welding procedure WPS-B-T-2231T to make weld OBE10-004. This butt weld joins the top deck plates between OBG segments 10AE and 10BE. This QA Inspector measured a welding current of approximately 300 amps, 29.0 volts, Mr. Chang Chuan Gang appeared to be certified to make this weld and the base material had been preheated with a torch. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Lin Bo, stencil 047353 used flux cored welding procedure WPS-B-T-2231-TC-U4b-F to make weld SEG060A-040. This butt weld joins the side plate to the bottom plate on the bikepath side of OBG segment 10AE. This QA Inspector measured a welding current of approximately 380 amps. Welding procedure WPS-B-T-2231-TC-U4b-F lists that the maximum welding current is 350 amps and Mr. Lin Bo appears to have a welding current that is approximately 30 amps above the maximum listed in the WPS. This QA Inspector asked ZPMC Certified Welding Inspector Mr. Sha Zhi to confirm the welding current and none

of the QC Inspectors in the area where this welding was taking place had a welding current meter to use for measurement of the welding current. This QA Inspector observed Mr. Lin Bo adjusting the flux cored welding machine controls and this QA Inspector then measured a welding current of approximately 300 amps and 29.0 volts. Items observed by the QA Inspector do not appear to fully comply with project specifications. See the photograph below for additional information.

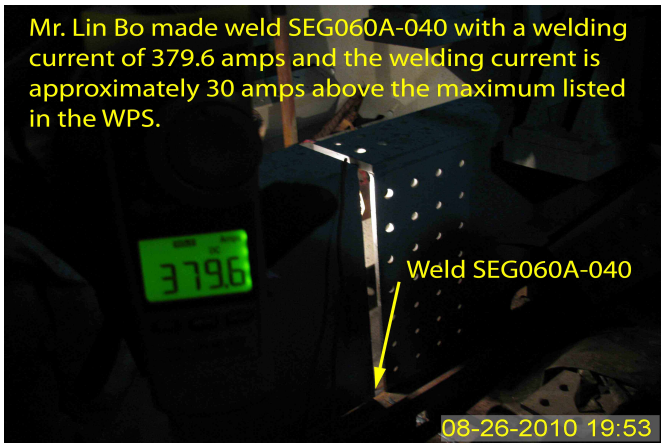
This QA Inspector observed ZPMC welder Mr. Li Hongren, stencil 062200 was preparing to use shielded metal arc process to make "T" stiffener tack welds between OBG segment 10AE bottom plate BP183A and OBG segment 10BE bottom plate BP76A. This QA Inspector observed the welding electrodes were being stored in a portable rod oven which is warm to the touch and it was connected to an electric power cable. This QA Inspector observed that Mr. Cheng Chong Lang had a torch available for preheating the base material and he appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Xu Nai Jun stencil 044551 preparing to use shielded metal arc welding process to complete repairs of weld CA070-005. This QA Inspector observed Mr. Xu Nai Jun appeared to be certified to make this weld. This weld joins the side plate to the edge plate on the bikepath side of OBG segment 9EE panel point PP085. This weld repair had been authorized by critical weld repair document B-CWR1858. This QA Inspector observed ZPMC personnel performing magnetic particle inspection of the area that had been gouged where an ultrasonic rejection had been located in the complete joint penetration weld. Earlier in the day there had been substantial lightning and a light rain had fallen and prior to Mr. Xu Nai Jun starting to weld, heavy rain started to fall. ZPMC CWI Mr. An Qing Xiang informed this QA Inspector that due to the rain, that no welding will be performed this shift. Items observed on this date appeared to generally comply with applicable contract documents.

OBG BAY 9

This QA Inspector monitored welding of closed rib Production Monitoring Test (PMT) representing OBG segment 14 deck plates DP3176(PL3489A/B)-001 and DP3177(PL3490A/B)-001 which were welded using one single base plate starting at around 0020 hours using gantry #1. This QA Inspector observed six ZPMC welders using welding procedure specification WPS-B-T-2342-U1(Urib)-5 using the gas metal arc welding process for the root pass and submerged arc welding process for the cover pass of partial penetration groove welds on six PMT closed rib welds at the same time. ZPMC had multiple welding manipulators attached to a movable gantry that runs on a track along the length of the stiffener plates. This QA Inspector observed a welding travel speed of approximately 536 mm per minute for the root passes and 519 mm per minute for the cover passes. As the welding commences, each of the welders was responsible for one of the welding heads. Welder Mr. Xu Guoyun, stencil 059443 completed the root pass of weld #1 with a welding current of approximately 385 amps and 31.7 volts and the cover pass welding current of approximately 700 amps and 25.1 volts. Welder Mr. Jiang Shuangchen, stencil 201788 completed the root pass of weld #2 with a welding current of approximately 370 amps and 30.4 volts and the cover pass welding current of approximately 700 amps and 21.5 volts. Welder Mr. Zhang Shaohui, stencil 059403 completed the root pass of weld #3 with a welding current of approximately 370 amps and 31.0 volts and the cover pass welding current of approximately 700 amps and 25.0 volts. Welder Mr. Xiang Huanfeng, stencil 059416 completed the root pass of weld #4 with a welding current of approximately 380 amps and 31.0 volts and the cover pass welding current of approximately 680 amps and 25.0 volts. Welder Mr. Yang Yongzeng, stencil 059418

completed the root pass of weld #5 with a welding current of approximately 370 amps and 30.8 volts and the cover pass welding current of approximately 700 amps and 24.71 volts. Mr. Song Yinshu, stencil 059421 completed the root pass of weld #6 with a welding current of approximately 390 amps and 30.7 volts and the cover pass welding current of approximately 690 amps and 24.8 volts. This QA Inspector performed random visual inspection of the six weld joint fitups, root passes and cover passes. ABF CWI Mr. Huang Wen Guang marked weld #1 and weld #3 as both having 200 mm lengths of overlap at the bottom toe of the welds. The maximum allowable overlap is 100 mm and both welds are visually rejected due to the overlap. ABF CWI Mr. Huang Wen Guang informed this QA Inspector that ZPMC has not prepared another PMT panel and that no additional PMT sample welds are to be performed this shift. Items observed by this QA Inspector do not fully appear to comply with project specifications and the QA Inspector documented this visual rejection on the "Production Monitoring Test Plate Inspection Report". See the photograph below for additional information.



Summary of Conversations:

See Above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer